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PALESTINE REFUGEE PROBLEM

NOTES ON A MAJOR IRRIGATION PROJECT FOR THE JORDAN VALLEY IN TRANSJORDAN

by
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INTRODUCTION

The outline dealt with here is based upon surveys and tentative schemes worked out during the course of the Hydrographic Survey in 1937-38, in the course of which a Report was presented to the Partition Commission in response to their request for information as to the possibilities of major irrigation in Transjordan. These possibilities were briefly reviewed in their Report.

TECHNICAL OUTLINE

There are many possible variants for major irrigation projects depending upon funds available, the sources from which water can be taken having regard to international water rights, and the technical methods chosen for bringing water on to the land. The project here outlined is one which excludes high-cost storage reservoir projects (e.g. in the Yarmuk Valley) and finds its water supply within the natural flow of the River Yarmuk, and within the flow of the Jordan at its outlet from the Sea of Galilee with the storage element which the Sea itself provides under control at its outlet.

The alignment of the canal is illustrated on page 2 of the attached extract from "Engineering" of September 13th, 1946. Water is diverted from the River Yarmuk by means of a weir, and a feeder is led from Lake Tiberias, joining the Yarmuk diversion at the top of the Valley. The main canal runs due south, hugging the foothills, with distributary canals taking off from its right or western bank to irrigate the Jordan Valley Terraces in Transjordan.

Under this (sample) scheme the irrigation is entirely "free flow" (i.e. no pumping is necessary) and an area of 300,000 dunams is provided for on an intensity of irrigation such that a family holding of 30 dunams might be suitable. This holding was, however, based on extensive cultivation; in view of recent developments and a rapidly growing westernized population in Israel, thoughts would probably turn to developing the Valley much more as a market garden, and with money crops of this kind and more intensive cultivation a smaller holding might be possible. On an extensive basis, the 30 dunam holding would provide for about 50,000 or 60,000 souls actually engaged in agriculture, but if more intensive cultivation were envisaged this would be a lower limit. To it must also be added the ancillary population; and in any case, on a basis of relief works to provide for an intense pressure on the land, some crowding might have to be envisaged which would further swell the estimate. At a very rough tentative guess it might be taken perhaps that

this project would provide for (say) 100,000 settlers, men, women and children.

At 1938 prices, the cost of works for this project came out at about £2,656,000. It was estimated at that time that on a basis of the unit of land developed, the capital cost was about the same as the Gezira Project in the Sudan including the cost of the Sennar Dam.

WATER RIGHTS

Apart from the question of funds, that of water rights as between Israel and the Arab countries is the biggest difficulty. The (sample) scheme as outlined here would deprive the Rutenberg Hydro-electric Works of its water. At the present time, the waters both of the Jordan and of the Yarmuk are ponded up behind a dam at the junction of the Yarmuk and the Jordan (see diagram in the attached reprint) and from this high-level pool the water passes through the turbines, dropping about 20 metres in the process. With this 20 metres of level lost, the water in the Jordan below the Hydro-electric Works is too low to enable a canal to command the lands to the south. Therefore, if a gravity flow project is to be contemplated, it would be necessary to expropriate the Rutenberg Works or convert them to (say) a diesel-driven plant. It is true that Transjordan, under the Hydro-electric Concession can claim rights to a share of water from the Yarmuk, which could be used for free-flow or gravity irrigation, but this would be a comparatively small proportion of the total waters.

It is outside the scope of this note to consider the considerations which might weigh in securing expropriation of the Hydro-electric Works, such as the inclusion of this as part of Israel's compensation to the Arabs. But if this were found to be impossible, it would still be practicable to lift the waters from below the Hydro-electric Works where it would have no effect upon them, by means of pumps which would discharge into a high-level canal on the same alignment as that shown in the diagram in the reprint attached. This would of course mean that the cost of delivering water to the land would be considerably higher, but it would not by any means necessarily rule it out economically, especially if the area is envisaged as a market garden on an intensive basis. Before the war, a fairly large-scale pumping project of this type was projected on the Transjordan side opposite Jericho. This pumping alternative, which would infringe none of Israel's rights in the waters, would at least have value as a bargaining counter.

POLITICAL CONSIDERATIONS

In view of the Rutenberg Hydro-electric Works difficulty, it is presumably desirable that in so far as Transjordan may make a move unilaterally, this must be within the limits of their legal rights taking the Electricity Concession into account. This leads to two specific lines of inquiry which could be pursued.

(a) A major project relying on pumping from below the Rutenberg Works and therefore not infringing the Concessionaries' rights in any way.

(b) A much smaller gravity project from the River Yarmuk based in principle upon Transjordan's rightful claim to those waters. Investigations could be pursued on this without prejudice to agreement with the Concessionaries or the actual amount available to Transjordan (Article 9 of the P.E.C. Concession concedes the principle that T.J. is entitled to some of the water, and makes reference to Clause 11(a) of the Concession). A Yarmuk Scheme on this basis would, however, be comparatively small.

It is suggested that these two possibilities which can demonstrably be brought within the competence of unilateral action by T.J., are an adequate peg on which to hang their action in promoting immediate investigations on their own account. Clearly, however, these are only second and third strings financially and economically. They are suggested only as "political path-finders" and it would be hoped to base the ultimate project on a free-flow system drawing water at high level from both the Yarmuk and the Sea of Galilee.